INTEGRATED RESOURCE PLAN (IRP)

Western Area Power Administration's (Western) customers must comply with the requirements of the Energy Planning and Management Program (EPAMP (10 CFR Part 905)) to meet the objectives of Section 114 of the Energy Policy Act of 1992 (EPAct). A Western customer is any entity that purchases firm capacity with or without energy, from Western under a long-term firm power contract. Integrated resource planning allows customers to meet the objectives of Section 114 of EPAct.

Integrated resource planning is a planning process for new energy resources that evaluates the full range of alternatives, including new generating capacity, power purchases, energy conservation and efficiency, renewable energy resources, district heating and cooling applications, and cogeneration, to provide reliable service to electric consumers. An IRP supports utility-developed goals and schedules. An IRP must treat demand and supply resources on a consistent and integrated basis. The plan must take into account necessary features for system operation, such as diversity, reliability, dispatchability, and other risk factors. The plan must take into account the ability to verify energy savings achieved through energy efficiency and the projected durability of such savings measured over time. *(See 10 CFR § 905.11 (a)).*

Who May Use This Form:

Utilities that primarily provide retail electric service that have limited staff, limited resource options, and obtain a significant portion of its energy needs through purchase power contracts are eligible to use this form. Utilities using this form may generate a limited amount of energy if the generating resources are primarily used as back up resources, to support maintenance and outages, or during periods of peak demand.

Completing This Form:

To meet the Integrated Resource Planning reporting requirement, complete this form in electronic format in its entirety. Unaddressed items will be deemed incomplete and the IRP may not be eligible for approval. All of the data fields in this form automatically expand. Additional information may be attached to and submitted with this report. Western reserves the right to require supporting back-up materials or data used to develop this report. If there is any conflict between this form and the requirements defined in EPAMP, the requirements in EPAMP shall prevail.

Submit the completed report with a cover letter to:

Attention: Power Marketing Manager
Western Area Power Administration
Rocky Mountain Region
P.O. Box 3700
5555 E. Crossroads Blvd.
Loveland, CO 80539-3003

EPAMP Overview

The Energy Planning and Management Program (EPAMP) is defined in the Code of Federal Regulations in Title 10, Part 905 (10 CFR 905). The purposes of EPAMP are to meet the objectives of the Energy Policy Act of 1992 (EPAct) while supporting integrated resource planning; demand-side management, including energy efficiency, conservation, and load management; and the use of renewable energy.

EPAMP was initially published in the Federal Register at 60 FR 54714 on October 20, 1995, and revised in 65 FR 16795 on March 30, 2000, and 73 FR 35062 on June 20, 2008. 10 CFR § 905.11 defines what must be included in an IRP.

Western's Energy Services Web site (www.wapa.gov/es/irp) provides extensive information on integrated resource planning and reporting requirements. If you have questions or require assistance in preparing your IPR, contact your Western regional Energy Services representative.

IRP Content

Cover Page ..... Customer Name & Contact Information
Section 1 ..... Utility/Customer Overview
Section 2 ..... Future Energy Services Projections (Load Forecast)
Section 3 ..... Existing Supply-Side Resources
Section 4 ..... Existing Demand-Side Resources
Section 5 ..... Future Resource Requirements and Resource Options
Section 6 ..... Environmental Effects
Section 7 ..... Public Participation
Section 8 ..... Action Plan and Measurement Strategies
Section 9 ..... Signatures and Approval

INTEGRATED RESOURCE PLAN (IRP)
5-Year Plan

Customer Name:
The Nemaha-Marshall Electric Cooperative Association, Inc.

IRP History: Check one as applicable.	
X	**This is the submitter's first IRP submittal.**
	This submittal is an update/revision to a previously submitted IRP.

Reporting Dates:	
IRP Due Date:	October 1, 2015
Annual Progress Report Due Date:	

Customer Contact Information: Provide contact information for your organization. The contact person should be able to answer questions concerning the IRP.	
Customer Name:	The Nemaha-Marshall Electric Cooperative Assn, Inc.
Address:	P O Box O, 402 Prairie St.
City, State, Zip:	Axtell, Kansas 66403
Contact Person:	Kathleen M. O'Brien
Title:	General Manager
Phone Number:	785-736-2345
E-Mail Address:	kmobrien@nemaha-marshall.coop
Website:	www.nemaha-marshall.coop

Type of Customer: Check one as applicable.	
	Municipal Utility
X	**Electric Cooperative**
	Federal Entity
	State Entity
	Tribal
	Irrigation District
	Water District
	Other (Specify):

SECTION 1 | UTILITY/CUSTOMER OVERVIEW

Customer Profile:
Enter the following data for the most recently completed annual reporting period. Data may be available on form EIA-861, which your submit to the U.S. Energy Information Administration (EIA).

Reporting Period	
Reporting Period Start Date (mm/dd/yyyy)	01/01/2014
Reporting Period End Date (mm/dd/yyyy)	12/31/2014
Energy Sales & Usage	
Energy sales to Ultimate End Customers (MWh)	46,318
Energy sales for Resale (MWh)	3.566
Energy Furnished Without Charge (MWh)	
Energy Consumed by Respondent Without Charge (MWh)	79
Total Energy Losses (MWh entered as positive number)	3,765
Total Energy Usage (sum of previous 5 lines in MWh)	53,728
Peak Demand (Reporting Period)	
Highest Hourly Summer (Jun. – Sept.) Peak Demand (MW)	12.0
Highest Hourly Winter (Dec. – Mar.) Peak Demand (MW)	10.9
Date of Highest Hourly Peak Demand (mm/dd/yyyy)	07/22/2014
Hour of Highest Hourly Peak Demand (hh AM/PM)	07 PM
Peak Demand (Historical)	
All-Time Highest Hourly System Peak Demand (MW)	14.5
Date of All-Time Hourly System Peak Demand (mm/dd/yyyy)	07/25/2012
Hour of All-Time Hourly Peak System Demand (hh AM/PM)	06 PM
Number of Customers/Meters (Year End of Reporting Period)	
Number of Residential Customers	3,245
Number of Commercial Customers	112
Number of Industrial Customers	0
Public Street and Highway Lighting	3
Irrigation	14
Sale for Resale	1
Other (Specify):	
Other (Specify):	

Customer Service Overview:

Describe your customer service territory and the services provided. Include geographic area, customer mix, key customer and significant loads, peak demand drivers, competitive situation, and other significant or unique aspects of the customer and/or service territory. Provide a brief summary of the key trends & challenges impacting future resource needs including population changes, customer growth/losses, and industrial developments.

Nemaha-Marshall's service territory covers all of Nemaha and Marshall counties in Kansas. We also serve parts of Washington, Jackson and Pottawatomie counties also in Kansas. Our geographical area sits among the Glacial Hills and is almost entirely agriculture in nature although we do provide service to the small villages of Baileyville, Lanham, Hollenberg, and St. Benedict. We serve the town of Axtell under a sale for resale contract. We hold franchise agreements with Seneca and Marysville. We are primarily residential/agricultural customer load. Our peak demand drivers are heating and cooling during the winter and summer months. During the fall harvest we see an increase in grain bin motor usage. We do see slight growth in kWh usage. We will have a wind farm locate in our service territory in 2016. We will provide back feed power only. If agriculture remains profitable we will see young farmers remain or return to our area. Our resources will need to remain competitively priced so as to make it attractive to live in rural northeast Kansas. The population of both Marshall and Nemaha Counties has decreased during the past 10 years. The 2000 Census recorded 10,965 in Marshall County and 10,717 in Nemaha County. The 2010 Census recorded 10,117 in Marshall County and 10,178 in Nemaha County. We predict the population will continue to decrease slightly as families are not as large.

Electricity Utility Staff & Resources:

Summarize the number of full-time equivalent employees by primary functions such as power production, distribution, and administration. Describe any resource planning limitations, including economic, managerial, and/or resource capabilities.

Nemaha-Marshall operates with 14 full time and 2 part time employees. Of the 14, eight of them are linemen. We have one janitor/warehouse/material person. We have only 1 full time billing clerk with 2 part time clerks who work mostly to cover our full time person's vacation or during busy times of the month. Our key staff include the General Manager, Operations Manager, Office Manager and Accountant.

Historical Energy Use:

Enter the peak system demand and total annual energy use for the preceding ten (10) reporting years. For total energy, include retail sales, energy consumed or provided without charge, and system losses.

Reporting Year	Peak Demand (MW)	Total Energy (MWh)
2005	13.5	56,092
2006	14.3	53,907
2007	13.6	57,170
2008	12.9	57,596
2009	12.9	57,479
2010	14.2	60,705
2011	13.9	58,496
2012	14.5	57,052
2013	11.7	54,343
2014	12.0	53,716

SECTION 2 | FUTURE ENERGY SERVICES PROJECTIONS

Load Forecast:

Provide a load forecast summary for the next ten (10) years; **and** provide a narrative statement describing how the load forecast was developed. Discuss any expected future growth. If applicable, you may attach a load forecast study and briefly summarize the results in this section. *(See 10 CFR § 905.11 (b) (5)).*

Load Forecast:

Reporting Year	Peak Demand (MW)	Total Energy (MWh)
2015	12.5	54,800
2016	12.8	56,100
2017	12.8	56,300
2018	13.0	57,000
2019	13.2	57,800
2020	13.4	58,800
2021	13.7	60,000
2022	14.0	61,400
2023	14.1	61,800
2024	14.3	62,700

Narrative Statement:

We provide a Load Forecast to our wholesale power provided in October of each year so they can use it for generation and transmission planning purposes. The Load Forecast was developed based on the assumption of 1.5% growth in demand an d1.45% growth in energy. We expect 25% of our growth to occur around our two largest towns of Seneca and Marysville.

SECTION 3 | EXISTING SUPPLY-SIDE RESOURCES

Existing Supply-Side Resource Summary:
Provide a general summary of your existing supply-side resources including conventional resources, renewable generation, and purchase power contracts (including Western Area Power Administration contracts). Describe the general operation of these resources and any issues, challenges, or expected changes to these resources in the next five (5) years. *(See 10 CFR § 905.11 (b) (1)).*

Nemaha-Marshall does not own any generation resources. We have one member owned wind turbine and root top solar array. Our power supply needs are provided by three Purchase Power Arrangements.

Westar Energy provides full requirements other than our SWPA and WAPA hydro power. Our contract expires in 2029.

Our SWPA contract expires in 2027. We receive 1,200,000 kWh's per contract year and 1,000 KW of demand each month. From time to time we also receive supplemental energy when SWPA determines we are eligible.

Our WAPA contract expires in 2024 and provides for 4,172,699 kWh's per year and Demand that ranges from 1,049 to 1,354 per month. We have executed a contract extension that begins in 2024 and runs through 2054. Capacity and energy may be adjusted slightly per the 2024 contract terms.

Even though we don't own the generation resources we expect there will be a decline in the use of coal fired generation in the next five (5) years due to the recent Clean Air Act.

There will be a move to use more wind and solar in order to reduce CO^2 emissions as required by the Clean Air Act.

Existing Generation Resources:

List your current supply-side resources, including conventional resources and renewable generation. If you do not own any generating resources, insert N/A in the first row. Insert additional rows as needed.

Resource Description (Identify resources as base load, intermediate, or peaking)	**Fuel Source**	**Rated Capacity (MW)**	**In-Service Date** (Year)	**Estimated Expiration/ Retirement Date** (Year)
N/A				

Existing Purchase Power Resources:

List your current purchase power resources. Define whether the contract provides firm service, non-firm service, all requirements or another type of service. Include Western Area Power Administration resources. If applicable, include a summary of resources that are under a net metering program. Insert additional rows as needed.

Resource Description	**Fuel Source** (If applicable)	**Contracted Demand (MW)**	**Type of Service** (Firm, Non-firm, Requirements, Other)	**Expiration Date** (Year)
Westar Energy	Entire Fleet	All Requirements	All Requirements	2029
Southwestern Power Admin	Hydro	1,000/Mo.	Firm	2027
Western Area Power Admin.	Hydro	14,328.Yr.	Firm	2024

SECTION 4 EXISTING DEMAND-SIDE RESOURCES

Demand-side programs alter a customer's use pattern and include energy conservation, energy efficiency, load control/management, education, and distribution system upgrades that result in an improved combination of energy services to the customer and the ultimate consumer.

Existing Demand-Side Resources:
List your current demand-side programs, including energy conservation, energy efficiency, load control/management, education, or maintenance plans, or system upgrades. Programs may impact the utility distribution system, municipally owned facilities, and/or end-user energy consumption. Refer to Section 9 of this form for a list of example programs. Insert additional rows as needed.
(See 10 CFR § 905.11 (b) (1)).

Program Description	Estimated Program Savings (MW and/or MWh if known) (Include annual impact and impact over the life of the program if known.)
Automated Meter Reading System that allows us to size transformers to consumer usage	By sizing the transformer appropriately we reduce system losses
Educating Members on Staggering Motor Starts	We notify anyone who uses 20KW of demand and educate them to stagger their motor starts
Sale of LED Bulbs	We sell LED medium base bulbs at cost to our members
Installing LED Rented Security Lights	When an existing Mercury Vapor Light is replaced we install an LED security light
Kil-A-Watt EZ	We loan a device to our members so they can analyze the high usage devices in their home
Boiler Replacement	We replaced our office boiler in 2015
Window Replacement	We replaced all windows and doors in our office and shop in 2013 and 2014

SECTION 5	FUTURE RESOURCE REQUIREMENTS AND RESOUCE OPTIONS

Balance of Loads and Resources (Future Resource Requirements):
Provide a narrative statement that summarizes the new resources required to provide retail consumers with adequate and reliable electric service during the 5-year resource planning period. Identify any federal or state regulations that may impact your future resource requirements. If you are not experiencing or anticipating load growth and a need for new resources, describe your current procedure to periodically evaluate the possible future need for new resources.

Since we are an all requirements customer of Westar Energy we provide them with a load forecast each October. Our latest load forecast assumed 1.5% growth in capacity and energy and was based on historical data. Westar compiles the data for all of the requirements customers and predicts when they will need new generation assets or PPA's. The recent Clean Air Act mandated a reduction in CO^2 emissions and there will be a reduction in the use of coal fired power and an increase in wind or solar power. Westar has already negotiated several wind PPA's and is doing an RFP for utility solar generation.

Identification of Resource Options

Identification and comparison of resource options is an assessment and comparison of existing and future supply-side and demand-side resources available to a customer based upon size, type, resource needs, geographic area, and competitive situation. Resource options evaluated must be identified. The options evaluated should related to the resource situation unique to each Western customer as determined by profile data such as service area, geographical characteristics, customer mix, historical loads, projected growth, existing system data, rates, financial information, and load forecast. *(See 10 CFR § 905.11 (b) (1)).*

Considerations that may be used to develop potential resource options include cost, market potential, consumer preferences, environmental impacts, demand or energy impacts, implementation issues, revenue impacts, and commercial availability. *(See 10 CFR § 905.11 (b) (1) (iii)).*

Future Supply-side Options:

List the future supply-side resource options that were considered and evaluated, including, but not limited to conventional generation, renewable generation, and power purchase contracts. Include a brief discussion on the applicability of each option for further consideration or implementation based on your system requirements and capabilities. If new resources are not required during the 5-year resource planning period, please indicate that below. Insert additional rows as needed.
(See 10 CFR § 905.11 (b) (1)).

Supply-Side Option	Applicability for Implementation or Further Consideration
No Resources Needed	We are an All Requirements customer of Westar Energy

Future Demand-side Options:

List the future demand-side resource options that were considered and evaluated. Demand-side programs alter a customer's use pattern and include energy conservation, energy efficiency, load control/management, education, and distribution system upgrades that result in an improved combination of energy services to the customer and the ultimate consumer. Include a brief discussion on the applicability of each option for further consideration or implementation based on your system requirements and capabilities. Insert additional rows as needed. *(See 10 CFR § 905.11 (b) (2)).*

Demand-Side Option	Applicability for Implementation or Further Consideration
Attic Report Card	The Board is reviewing a loan program to assist members in evaluating their current attic insulation. If more insulation is needed the cooperative would loan money for the project. Funding for installation would be provided by RUS through their REDLG revolving loan program. The evaluation is done at no cost to the member by the Attic Report Card organization.

Resource Options Chosen:

Describe the resource options that were chosen for implementation or further consideration and clearly demonstrate that decisions were based on a reasonable analysis of the options. Resource decisions may strike a balance among applicable evaluation factors such as cost, market potential, customer preferences, environmental impacts, demand or energy impacts, implementation issues or constraints, revenue impacts, and commercial availability. *(See 10 CFR § 905.11 (b) (1) (iv)).*

We will continue to support Westar's resource options so long as they meet the recent mandates of the Clean Air Act.

We will continue to support the development of member owned generation resources.

SECTION 6 ENVIRONMENTAL EFFECTS

Environmental Effects:

To the extent practical, Western customers must minimize environmental effects of new resource acquisitions and document these efforts. IRPs must include a qualitative analysis of environmental impacts in summary format. Describe the efforts taken to minimize adverse environmental effects of new resource acquisitions. Describe how your planning process accounts for environmental effects. Include a discussion of policies you conform with or adhere to, and resource decisions that have minimized or will minimize environmental impacts by you and/or your wholesale electricity supplier(s). Western customers are neither precluded from nor required to include a qualitative analysis of environmental externalities as part of the IRP process. If you choose to include a quantitative analysis, in addition to the summary below, please attach separately. *(See 10 CFR § 905.11 (b) (3)).*

Nemaha-Marshall does not plan to add any new resources.

Member owned renewable resources such as wind and solar will have no environmental effects.

SECTION 7 PUBLIC PARTICIPATION

Public Participation:

Customers must provide ample opportunity for full public participation in preparing and developing an IRP. Describe the public involvement activities, including how information was gathered from the public, how public concerns were identified, how information was shared with the public, and how your organization responded to the public's comments. *(See 10 CFR § 905.11 (b) (4)).*

We hold an annual meeting of members and have a question and answer session at the end. At our last annual meeting held in March, 2015 we informed the membership about our recent WAPA allocation and of the IRP Plan. The members questioned whether the cooperative might develop a community based solar array and they were informed that our power contract precludes us from adding any generation resources.

SECTION 8	ACTION PLAN & MEASUREMENT STRATEGIES

Action Plan Summary:
Describe the high-level goals and objectives that are expected to be met by the implementation of this resource plan within the 5-year resource planning period. Include longer term objectives and associated time period(s) if applicable. *(See 10 CFR § 905.11 (b) (2)) and (See 10 CFR § 905.11 (b) (6)).*

We will continue to credit the full retail rate for energy produced by member owned renewable resources as provided by law and by our Net Metering tariff.

The goal of this IRP over the next five years would be to utilize our meter reading system and add some modules to our billing software program that will allow our members to have access to their usage through an APP called Smart Hub. The member will be able to control their own usage by receiving real time usage data.

We will also be focused on reducing our line loss. Currently we run about 7.1%. A 1% reduction in line loss will save us approximately $40,000 per year.

We have a long range plan to rebuild 20-30 miles per year for the next 20 years. By changing old copperweld conductor to ACSR conductor we will reduce line loss.

Specific Actions:
List specific actions you will take to implement your plan over the 5-year planning horizon.

New Supply-Side Resource Acquisitions:

List new resource options your organization is planning to implement, investigate, or pursue in the next five years. Include conventional generation, renewable resources, net metering programs, and purchase power contracts. Include key milestones such as the issuing an RFP, executing a contract, or completing a study. *(See 10 CFR § 905.11 (b) (2)).*

Proposed New Resource	Begin Date	Est. New Capacity (MW)	Milestones to evaluate progress and/or accomplishments
Member Renewables	2016	.02	Evaluate the number of members adding renewable resources.

New Demand-Side Programs & Energy Consumption Improvements:

List energy efficiency, energy conservation, and load management programs your organization is planning to implement or evaluate in the next five years. Include key milestones to evaluate the progress of each program. Insert additional rows as needed. *(See 10 CFR § 905.11 (b) (2)).*

Example programs could include:

- Education programs & communications
- Energy efficient lighting upgrades
- Energy audits
- Weatherization & Insulation
- Window/doors upgrades
- Boiler, furnace or air conditioning retrofits
- Programmable thermostats
- Equipment inspection programs
- Use of infrared heat detection equipment for maintenance
- Tree-trimming/brush clearing programs
- Electric motor replacements
- Upgrading distribution line/substation equipment
- Power factor improvement
- Loan arrangements for energy efficiency upgrades
- Rebate programs for energy efficient equipment
- Key account programs
- Load management programs
- Demand control equipment
- Rate designs
- Smart meters (Time-of-Use Meters)

Proposed Items	Begin Date	Est. kW capacity savings per year	Est. kWh savings per year	Milestones to evaluate progress and/or accomplishments
Education Programs	ASAP			Use bill stuffers and printed material in our office
Energy Efficient Lighting	ASAP		10,850	Install 25 LED Dusk to Dawn Security Lights per year
Tree Trimming	ASAP			We track our ROW clearing and clear all line every three years. We also use basal spray for more permanent results.

Measurement Strategies:

Describe your plan to evaluate and measure the actions and options identified in the IRP to determine if the IRP's objectives are being met. The plan must identify and include a baseline from which you will measure the IRP implementation's benefits. *(See 10 CFR § 905.11 (b) (6)).*

In 2014 our rented and public security lights used 466,720 kWh's. As we move to LED security lights we will be able to track the lower kWh usage.

In 2013 and 2014 we used approximately 78,000 kWh's in our office. We will track our office usage to see how much energy our new windows and boiler save us.

SECTION 9 SIGNATURES AND APPROVAL

IRP Approval:
Indicate that all of the IRP requirements have been met by having the responsible official sign below; **and** provide documentation that the IRP has been approved by the appropriate governing body (i.e. provide a copy of the minutes that document an approval resolution). *(See 10 CFR § 905.11 (b) (4)).*

Thomas L. Niehues **(Name – Print or type)**	**President** **(Title)**
Thomas L. Niehues **(Signature)**	**August 26, 2015** **(Date)**

Other Information:
(Provide/attach additional information if necessary)

IRP Posting Requirement:
10 CFR § 905.23 of the EPAMP as amended effective July 21, 2008, facilitates public review of customers' approved IRPs by requiring that a customer's IRP be posted on its publicly available Web site or on Western's Web site. Please check the method in which you will comply with this requirement within thirty (30) days of receiving notification the IRP has been approved:

	Customer will post the approved IRP on its publicly available website and send the URL to Western.
X	Customer would like Western to post the approved IRP on Western's website.

IRP Updates:
Western's customers must submit updated IRPs every five (5) years after Western's approval of the initial IRP.

IRP Annual Progress Reports:
Western's customers must submit IRP progress reports each year within thirty (30) days of the anniversary date of the approval of the currently applicable IRP. Annual progress reports can be submitted using Western's on-line reporting tool, which can be accessed at: www.wapa.gov/es/irp